A Critique of the State University – Higher School of Economics' "Non-Market Sector In The Economy Of Russia"

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I. Comments on the Overall Objective and Purpose of the Paper

A team of academic economists headed by Professor Yassin, Ph.D. of the State University Higher School of Economics in Moscow, Russia, carried out an innovative study in 2001 to "study the degree of adjustment of Russian industrial enterprises to market economy conditions" during the period of 1998-2000. The approach taken in the study was to identify the size and impact of the "non-market" segment of the economy – that segment that has not yet successfully adjusted to operating in a "market" economy. The study was also intended to determine what the opportunity costs are to the Russian economy from continued support of the "non-market" segment through subsidies and other types of non-market-based transfers. This work is ongoing, and the full analysis of the data for 2000 will not be completed until late in 2001. Thus, the current paper represents an interim report.

The study has broken new ground in several ways. It combined the use of a representative sample of Russian industrial enterprises, using standardized data collected annually by GOSKOMSTAT, with a smaller, targeted survey of a subset of managers from these firms to try and learn more about the factors that influence efficient production. A partnership was developed with GOSKOMSTAT that allowed the study team to use a micro-analytical approach and work with individual enterprise data. Firm-level data from GOSKOMSTAT was linked with the interview data through a coded system that allowed the Yassin Team to integrate the information about each firm into a highly valuable database.

Although the research team encountered some difficulties in organizing and analyzing the data, the research that was undertaken and reported in this interim paper is highly valuable in understanding the evolution of the Russian economy towards a stronger market-based configuration. The Yassin team took a creative approach in designing a methodology to categorize firms in its sample as being in either the market or the non-market segment of the industrial economy. It then examined certain characteristics of the firms in each segment to determine whether there were statistically significant differences in these characteristics that could explain why some enterprises were efficient and able to make a positive contribution to GDP, while others remained dependent upon government subsidies and special preferences in order to remain in operation.

The analyses were carried out in eight industrial sectors: fuel and energy; ferrous and non-ferrous metals; chemicals; engineering; forestry and wood products; building materials; light industry; and foodstuffs. Representative samples were examined in each sector, and the difference in the structure of these industry sectors was determined to be a factor in determining the size of the "non-market" segment of that sector. Similarly, qualitative information obtained in the interviews with managers allowed the Study Team to understand the relationship between certain key variables and the efficiency of individual enterprises. These variables included: the size and length of firm debt, the role of subsidies and other state-financed transfers, the

availability of bank credit, and the relative importance of cash vs. barter vs. credit as a method of settling accounts receivable. A better understanding of these relationships has significance for Russian industrial policy and for the role that the banking system might play in the future in terms of enhancing the efficiency of industrial enterprises.

This paper provides a brief critique of the Yassin Team's interim report that was completed in September 2001. The critique is based on an English translation of the original Russian report. As is frequently the case in translating highly technical information, it is not always possible to transfer the precise meaning of the original material, or to provide an entirely clear explication of the authors' intent. There is always some loss of meaning in a technical translation of this type, since the translator is not always expert in the specifics of the technical work. This has been a problem in this case, even though most of the report was understandable.

Comments have been divided into two categories: comments on the methodology, and comments on the conclusions. Where translation problems are at the root of a particular comment, I beg the understanding of the original authors.

II. Comments on the Methodologies Used in the Analyses

In order to be entirely thorough in its investigation of the size and importance of the "non-market" segment of the industrial sector, the Yassin Team used several approaches to identify and characterize non-market enterprises. These were: 1) the representative sample of nearly 1,000 firms that was put together from GOSKOMSTAT data, as mentioned above; 2) the survey of approximately 512 firms in which senior managers were interviewed to ascertain their views on the factors that contribute to market vs. non-market-related behavior; and 3) a special analysis of three industrial sectors – energy and power, mechanical engineering, and building materials – in an attempt to further confirm the conclusions drawn from the other two analyses.

The GOSKOMSTAT SAMPLE: Defining Non-market Enterprises

Gross Value Added. As part of the analyses conducted with the GOSKOMSTAT data base, the Team concluded that a reasonable surrogate for determining whether a firm was in or out of the "market economy" was whether its adjusted gross value added contributed positively or negatively to GDP. Gross value added (GVA) was defined as the size of a firm's gross operating surplus (or deficit). In other words, GVA was calculated as the difference between the "**production of goods and services"** and "**interim consumption,"** where **GVA** was defined as equal to:

> The value of goods sold and shipped + the increase in the value of inventories[1] + the increase in the value of goods in process + the value of goods produced for

[1] The Study team pointed out that one deficiency here was that this method did not adjust for the effects of inflation on the value of finished goods held in inventory.

and transferred to other units within that enterprise + the value of processing raw materials supplied by customers

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Interim Consumption (IC), where **IC** was defined as:

The cost of primary factor inputs + the change in existing inventories of primary factor inputs + the value of goods and services (intermediate goods) provided by other firms) + rent + the cost of Raw Materials supplied by customers + other expenses related to the production of goods produced or partially produced during that period.[2]

The Team then adjusted Gross Value Added to net out any possible inclusion of subsidies (transfer payments from the government), any increase in inventories of finished goods, and any "excessive" growth in accounts receivable. The rationale for these deductions was as follows:

- **Government subsidies** are the direct manifestation of the "non-market" economy and should be netted out from any definition of net operating surplus;

- Any **increase in inventories of finished goods** was defined as production that was carried out in excess of market demand. This production was defined, therefore, as non-market related; and

- Any **growth in accounts receivable** over and above the typical "average" growth rate relative to GVA for the industry sector overall, was defined as "excessive." For 1998, this excess was subtracted from GVA; for 1999, ANY increase over the 1998 level was subtracted from GVA. The rationale behind this decision was that growth in accounts receivable represented goods sold to insolvent buyers and that output was not sufficiently oriented towards market requirements.

On the one hand, these deductions to arrive at adjusted GVA are legitimate; there is no reason to include government subsidies in the definition of a firm's contribution to GDP. On the other hand, the data do not allow the study team to sort out whether all of the transfer payments from the Government that are being netted out reflect subsidies. The Team, itself, notes that "certain payment transfers" may not, in fact, be subsidies, but they argue that they must make this deduction to ensure that non-market factors are removed from GVA.

A second point here relates to the decision rule on inventories of finished goods, ie, the excess of production over sales. Making the assumption that market demand is equal to sales and nothing more is excessively conservative. There could be other reasons

[2] This last item was calculated based on an average profile for enterprises in that sector.

for building up inventories. These include: temporary lower prices on major factor inputs, an expectation of increased market demand in the near future, the prospect of an immediate increase in sales due to ongoing market development efforts, a forthcoming international trade show, etc. The paper does not provide information on the size of this variable, and, therefore, the reader does not know whether this is a significant or a minor adjustment to GVA.

A third point relates to the reduction in GVA due to "excessive" growth in accounts receivable. Again, the interpretation provided here is probably too conservative, since there could be explanations for temporary increases in accounts receivable that are entirely unrelated to whether or not a firm is dealing with insolvent customers. This is particularly true after the 1998 ruble devaluation crisis, since some reliable customers may have been caught up in their own cash flow problems that prevented them, temporarily, from paying their bills. This item, as well as the decision on inventories of finished goods, would be excellent questions to pursue in the interviews with enterprise managers. More information is needed on how to handle these variables.

Critical Aggregate Debt. Another indicator that was used to identify "non-market" enterprises was "critical aggregate debt," or the sum of accounts payable overdue and debt arrears greater than 18 months of GVA production. Firms that had high levels of these variables were deemed to be, for all practical purposes, bankrupt, and were so noted in the sample

Aggregate Negative Rating – ADVERSE MARKET CONDITIONS INDEX. Firms with negative adjusted GVA and high levels of critical aggregate debt were assigned an aggregate negative rating and categorized as such in the adverse market conditions index, which relates to the market sustainability of a particular enterprise. Firms meeting this condition were deemed to be in the "non-market" sector. All firms were categorized into one of three groups:

- "Sustainable" – firms with positive adjusted GVA and little or no critical aggregate debt;
- "Problem" enterprises – firms that showed negative results in one of the two indicators; and
- "Decaying" enterprises – firms that failed on both accounts.

These groupings were then used to analyze market-oriented and non-market enterprises on a variety of characteristics. These included average labor productivity, average number of employees, average monthly wages, the proportion of barter vs. cash transactions in which a firm engages, the ease of obtaining bank loans, the ownership status of the firm (independent vs. part of a large group), capacity utilization ratio, growth rate between 1998 and 2000, and several other self-assessment criteria. As discussed in the next section, there were significant positive correlations between "sustainable" firms and positive outcomes on these variables, and between "decaying" and negative outcomes. This would suggest that the methodology that has been

designed to measure these relationships was well designed and appropriate for the task.

With the data from the interviews of senior managers from 512 firms, the Study Team identified and investigated further, those factors that affect value added production and redistribution. In other words, they began to focus in depth on the explanation why some enterprises are successful, and others fail or remain dependent upon continued Government subsidies. To begin with, they established a new taxonomy that classified these factors into four categories:

1. **Technological conditions** – in which the principal factors are **capacity utilization and optimization;**
2. **Transaction terms** – which measures **the share of payments received in cash** or settled through banking transactions in contrast to barter, credit, etc.;
3. **Institutional conditions** – which relates to the **degree of vertical or horizontal integration**, and **relations with local authorities**;
4. **Innovative factors** – which relates to the extent to which firms are introducing new products, new accounting and planning procedures, new management and personnel schemes, etc. They established a binary scale of 0 and 1 to reflect the degree of innovation reflected by a particular enterprise, where 1 is used to characterize a firm that has introduced innovations in the last two years and "0" is used to define a firm that has done no innovation.

It is interesting to note that other types of restructuring indicators were not used in defining "innovative factors," unless the terms they have used are meant to reflect restructuring efforts. For example, it would be useful to know whether "new management and personnel schemes" means firing redundant workers. Or whether new accounting and planning procedures means that product lines that are not profitable have been eliminated. What they did ask about were whether obsolete equipment had been phased out, whether ISO certification had been obtained, whether new capacity had been introduced, or new Russian partners obtained. These items were statistically significant with respect to being present in the best firms.

Yet another classification system was introduced here to organize enterprises into "problem," "average" or "effective" firms, depending upon their respective performance in four indicators: negative or positive GVA, operating loss or profit, debt burden (in relationship to a critical threshold), and "positive or negative capital gains."

- **Problem** companies were those that were negative on all four indicators – these equaled 34.6% of total enterprises;
- **Average** companies were positive on added value, had minimal operating losses and debt, but were negative on capital gains – these equaled 43.6% of the total;
- **Effective** companies were positive on all four indicators – these equaled 21.7% of the total

They then looked at how the firms in these categories fared with respect to certain key variables. These variables included:

- Average wages per employee
- Added value produced/employee
- Average amount of state support per employee
- Tax burden per employee
- Tax liabilities per employee (was this unpaid taxes?)
- Extra-budgetary liabilities per employee (subsidies?)
- State financial support per employee

The analysis was complemented by interviews with company managers on a series of questions related to their "subjective assessment of the economic status of their respective enterprises in 2001." In general, the empirical analyses confirmed the hypotheses developed by the Yassin Team, with minor exceptions. The modal amount of state support per employee was higher, for example, in effective companies, than in problem companies. On the other hand, about 80 per cent of all enterprises sampled received NO state support. Thus, this finding may have been anomalous.

One other comment is worth mentioning, although the problem may lie in the translation. One term that was used to classify firms was "positive or negative capital gains." My sense is that the correct term is not capital "gains," but capital accumulation/decumulation. What they were trying to indicate was that in problem companies that did not have adequate financing to replace plant and equipment, etc., the original capital equipment was still being used, to the extent that it was still functioning. Firms in this category were doubly inefficient in that the old equipment was generally much less productive than newer models, and they were putting themselves further behind for the future by being unable to acquire adequate cash flow through depreciation to finance new investments.

Finally, the Yassin Team did a series of correlations examining the relationships among the three groupings by industry sector and most of the variables mentioned above. This includes the technological, transaction, and institutional conditions, the innovative methods, the key per employee variables, and the variables included in the managers' questionnaire. These latter items related to an assessment by managers regarding their firms' recent and anticipated performance. It was noted that managers seemed to be reasonably accurate in judging whether or not their firms were doing well or poorly.

There is a serious question to be raised regarding the utility of all of these complex correlations. For one thing, it is difficult for the reader to comprehend all of the taxonomic groupings that are introduced throughout the paper. There is, initially, the categorization of firms in the GOSKOMSTAT sample by their adjusted GVA and their critical aggregate debt. This allowed the Study Team to rate each enterprise along the Adverse Market Conditions Index and to assign it a designation of "sustainable," "problem," or "decaying." Subsequently, it appears that enterprises are given an

alternative designation of “problem,” “average” or “effective” using a similar, but somewhat different set of criteria.

In each case, characteristics that are used to further describe and understand the differences among firms in these grouping are examined visually and in various correlation analyses. The multiplicity of definitions and groupings, in and of itself, is confusing enough. What is additionally difficult to follow is the presentation of the relationships among all of these variables. It is unclear why multiple regression analyses were not performed. Or, if they were performed, why the results of these analyses were not provided in the conventional way. Was this the basis for the integrated analysis shown in Figure 1: Model of Added Value Generation Factors? Econometric methods are entirely appropriate for determining the relative importance of the different variables that characterize performing, non-performing and average enterprises.

A final set of analyses was carried out on a subset of firms in three industrial sectors – mechanical engineering, building materials and power generation and distribution – to confirm the conclusions reached in the earlier analyses. Several variables were selected to demonstrate the efficacy of changes in business operations between 1998 and 1999. These included the net output of goods and services in 1998 and 1999, the ratio of 1999 output to that in 1998, the value and change in number of employees in 1998 and 1999, and the GVA to output ratio in 1998 and 1999. There were also questions posed to managers regarding backlog, innovation, attempts to develop new markets, expand capacity, borrow money from banks, and methods of payment. The results were not entirely consistent, either within a particular industry or among industry sectors, although they were, in general, in line with findings obtained through the earlier analyses. What was clear, however, is that the conclusions drawn in the various analyses that were undertaken in this project cannot be applied across the board. There are still too many differences from sector to sector and among firms in the same sector. Additional analyses are required over longer periods of time to provide a more definitive understanding of these issues.

III. Comments on the Conclusions

The conclusions of the Yassin study are straightforward and clear.

- The economic health of the Russian industrial sector improved substantially between 1998 and 1999 as measured by the proportion of firms that were assigned to the “market sector” of the economy because they produced a positive gross value added (GVA) , a positive adjusted value added (AVA), and a lower level of critical debt;

- The role of the market sector increased further in 2000, while there was a decline in the non-market sector, although results for that year were still preliminary in the present report draft;
- Sectors with the largest proportion of "sustainable" firms were ferrous and non ferrous metals, the food industry – perhaps due to the alcoholic beverage subsector – and building materials. Fuel and energy had the highest percentage of "decaying" enterprises. This may be due to the inclusion of coal, peat, and shale production, which dragged down the vibrant oil and gas export-oriented sector.
- The proportion of firms in the non-market sector increased when GVA was adjusted to exclude subsidies and other forms of state transfers that artificially sustained the operation of many of these firms;
- Inefficient, non-market firms appear to borrow money from the banking system almost in the same proportion as sustainable enterprises. This suggests a sort of long-term sustainability or equilibrium that banks assign to non-market firms that allows them to remain in business, regardless of their profitability. Overall, however, between 80% and 90% of companies found it difficult or impossible to borrow money from banks, regardless of their categorization.
- Payments in cash, including settlements via the banking system, generally increased between late 1998 and late 2000 to 62% and 57.4%, respectively. Barter transactions declined from 35.3% to 24.1%.
- The two variables, capacity utilization and size of barter transactions, accounted for 18% in the variance in the value added production, according to a methodology named UNIANOVA. The rate of capacity utilization, itself, is one of the most important factors affecting an enterprise's market-based status. Other critical factors include backlog, which directly translates into capacity utilization, and the extent to which a firm is vertically or horizontally integrated into a bigger industrial grouping.
- Efforts to innovate, restructure through decommissioning of obsolete equipment and machinery, or other methods, are also important.

It appears that the sustainable or effective firms tend to have fewer barter transactions and more cash/bank-related transactions than problem or decaying firms. It would be helpful to obtain more qualitative information on this subject. Do decaying firms have less market power with sellers and buyers so that they are forced into barter arrangements that they would like to avoid?

In addition, the targeted survey of enterprise managers confirmed that the capacity utilization of "non-market" sector enterprises was relatively low – half of the least efficient firms had capacity utilization rates below 50 per cent. The Report attributed this to non-competitiveness and insufficient demand for the products of these firms. While this may be true to a large extent, might this not also reflect a lag in downsizing and adjusting to the change in demand? Capacity utilization improved for all firms in 1999 and 2000.

Another conclusion of the survey was that in 48% of "decaying enterprises," managers reported that their goods are no worse than foreign products, and 27% said that their goods are better. That is, in 75% of these firms the managers saw no need to upgrade their products. The Report concluded that this opinion reflects the fact that these managers operate in "protected markets." While this is not unimportant, there is still much of the Russian economy that operates in markets that have not changed substantially since Soviet days. Their customers in these firms could be ordering exactly what these "decaying" enterprises are making. These customers may not be able to afford the retooling needed to switch to imported items or may be satisfied with the traditional domestic product. While it is true that this condition reflects the continued existence of the "non-market" economy in a global sense, the onus in this case is not with the enterprises being studied but with their customers.

An interesting conclusion relates to the development of what the report calls the "extra-market" sector. This is a sector in which non-market type firms are acquired by large, integrated structures with which they've been associated, rather than improving and becoming market-oriented firms. In other words, there seems to be a value that these large complexes put onto these non-market firms that stimulates the acquisition.

The Report questions the utility of these acquisitions. Taking a broader view might identify synergies that are realized through these acquisitions that benefit the complex overall. Perhaps there are efficiencies that are subsequently reached. In fact, the Report does go on to say that the incorporation of many of these firms within broader, integrated enterprises, particularly in export-oriented firms, leads to greater capacity utilization and greater value added. The Report still criticizes this practice, however, since, at some level, it tends to "protect" inefficient firms even as they serve some utility within the sector. The issue may be the aggregate utility or the externalities that accrue from the acquisition. For example, barter is less frequently found in large, integrated firms. What are the other complementarities?

One last point relates to the issue of "excessive" or over-employment that still characterizes much of the Russian economy. The Report rightly criticizes this condition as a drag on the overall economy. But what it has not considered is the extent to which Russia has made a political choice, partly due to the legacy of state-run enterprises, to have firms bear the burden of social protection through over-employment rather than through a direct transfer payment to redundant workers. Further investigation of this point could be an interesting analysis for the next phase.

On the issue of presentation formats, the current multiple row and column tables that go on for several pages are extremely hard to work with. Other visual formats would be easier to absorb. Bar graphs, for example, or stacking bars, could incorporate much of the information in the complicated tables. This is a point to be considered throughout the Report. The actual statistical information could be included in a tabular Appendix.

Finally, although the Report is not yet complete, there are two sections mentioned in the contract that have not yet been directly addressed. These include an effort to measure

the “distorting effect on economic progress” of non-market-related transactions in Russia, and measurement of the “losses to the Russian economy” derived from the continuing existence of the non-market sector. Both of these tasks will require major assumptions to be made about these two issues. It is hoped that the authors will be able to address these questions in completing the analysis of the data in year 2000.